

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

C A N A D A

Title: IMPROVED LACROSSE STICK

Inventor: JOHN A. HOULT

ABSTRACT OF THE DISCLOSURE

A novel guard, plastic hooked portion, and handle for a lacrosse stick. The hooked portion comprises in serialism a shank adapted to receive the handle, a straight portion having a U-shaped cross-section, a curved portion and a toe, and the guard comprises a planar member having openings at opposite ends for attaching the guard to the shank and to the toe of the hooked portion. The handle comprises a tube having a plurality of inwardly extending longitudinal ribs.

896691

This invention relates to an improved lacrosse stick.

Lacrosse sticks are traditionally made from a single piece of hickory wood which is formed into a straight handle and bent hooked portion. The open side of the hooked portion is closed by a guard formed from strands of strong cat gut or the like and a net is then attached to the hooked portion and to the guard for catching a ball. The guard is required to support the net securely so that the ball moves  
10 freely into and out of the net.

During use the guard tends to loose its shape which may result in inaccuracy when firing the ball since the guard will tend to interfere with the direction of the ball as the ball leaves the net.

It is a primary object of this invention to provide a lacrosse stick having an improved guard for supporting the net at the open side of the hooked portion, and it is a further object of the invention to provide a hooked portion made from plastic.

20 According to a preferred embodiment of the invention, a lacrosse stick is provided having a handle and a plastic hooked portion. The hooked portion has a shank at one end for connecting the hooked portion to the handle, and terminates in a toe at the other end. The open side of the hooked portion between the toe and the shank is closed by an elongated guard which is attached by strong leather strands to the toe and the shank. A net is strung between the hooked portion and



896691

the guard and the handle is fitted into a socket in the shank.

In the drawings which illustrate a preferred embodiment of the invention;

Fig. 1 is a perspective view of a lacrosse stick according to the invention;

Fig. 2 is a view from below the lacrosse stick in the direction of arrow A in Fig. 1;

Fig. 3 is a sectional view on line 3-3;

Fig. 4 is a sectional view on line 4-4; and

Fig. 5 is a sectional view on line 5-5.

10

As seen in Fig. 1 a lacrosse stick 10 of the type used in box lacrosse comprises a handle 12 which is rigidly attached to a shank 13 of a hooked portion 14. The hooked portion terminates at its distal end in a toe 15 and the open side of the hooked portion between the toe 15 and the shank 13 is closed by a guard 16. One end of the guard is attached to the toe of the hooked member, by leather strands 18, or the like and the other end to the shank by strands 20. A net 22 is made up of leather strands which pass through openings 23 (Fig. 4) in the hooked portion 14 and through similar openings in the guard 16. Some of the holes 23 near the shank 13 preferably pass right through the hooked portion so that the strands of the net 22 which pass through these holes can be fastened outside the hooked portion for easy adjustment.

20

As seen in Fig. 2, the shank 13 of the hooked portion 14 includes a socket 24 for receiving an end of the handle 12, and the straight section 26 of the hooked portion 14

896691

extends from the shank 24 towards a generally semi-circular curved section 28 which terminates in the toe 15. The shank 13, the straight section 26, the curved section 28, and the toe 15 are preferably formed in a single plastic molding of high impact strength "Polysar" (trademark of the Polymer Corporation for an acrylonitrile styrene butadiene), preferably "Polysar" Grade 940. The outer side of the curved section 28 includes a rib 30 which is best seen in Fig. 3. The rib 30 extends around the curved section to protect the strands of the net 22 when the lacrosse stick contacts the playing surface 32 or other object.

Reference is now made to Figs. 2 and 4 which show the structure of the straight section 26. The weight of the straight section 26 is reduced by forming it with a generally U-shaped cross-section which opens out towards the under side of the lacrosse stick. The U-shaped cross-section is strengthened by ribs 34 which are formed integrally with the hooked portion 14 to strengthen the straight section 26. While the hooked portion 14 is preferably used with the guard 16, it can be strung conventionally with a cat gut guard or the like. Also the shape of the hooked portion may be modified for a goalkeeper's stick or for field lacrosse.

The guard 16 shown in Fig. 1 consists of a generally planar member having a straight upper edge 35 and a bottom edge 36 which consists of two angled portions 37 and 38 each of which slopes rearwardly from the ends of the guard 16 to meet at the centre of the bottom edge 36. (The term 'planar member'

896691

includes any member having a generally planar surface which faces the net 22 when the member is attached to the hooked portion. The member may have holes in it but the portions bordering the holes would lie generally in a plane ). The shape of the guard 16 may be varied but it is preferably as described to give shape to the net for catching the ball. The guard can be strung into any conventional lacrosse stick between the toe and the shank. (In a conventional stick the shank would be that part of the hooked portion where the hooked portion meets the handle).

The handle 12 may be of wood or plastic but the handle is preferably formed as shown in Fig. 5 wherein a flat-sided plastic tube 42 has inwardly extending longitudinal ribs 44 for strengthening the tube 42. For added strength, a rod 46 can be engaged between the ribs as shown in Fig. 5. The rod is preferably round and made of wood but it may be made of any other suitable material such as aluminum tubing or aluminum rod and the shape of the rod may be changed if required. However the shape and type of material used should preferably provide a light and relatively rigid handle. The shape of the cross-section of the plastic tube 42 is optional although a non-circular cross-section improves a players grip and makes for a rotation-resistant joint at the shank. An alternative handle is all plastic and is arranged so that the handle is stronger in the plane of the lacrosse stick than it is in a plane at right angles to the stick. This provides a handle which will flex slightly when firing or receiving a ball but

896691

which also resists side forces tending to bend the handle in the plane of the hooked portion. In a further alternative plastic handle the ribs meet at the axis of the handle. Such a handle preferably has four ribs which meet at the axis. \*

10       The guard 16 provides a relatively rigid support for receiving and firing the ball. The guard is preferably made of "Polysar" as in the case of the hooked portion 14, and it is made thin enough to be slightly pliable while being thick enough to retain its shape and support the net 22. If required the guard can be strengthened by providing a continuous rib around its periphery or by forming integral ribs on its outer surface. The leather strands 18, 20 should be tightened occasionally to hold the guard securely in place with the strand 18 preferably holding the guard in overlapping relation with the toe 15 to give the guard 16 more stability.

20       The net 22 can be of any suitable form commonly used in lacrosse-sticks including the types which have pieces of leather woven into the net to form an apron or stop. Also the net can be made as an integral plastic moulding and attached to the hook portion by any suitable means.

896691

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A lacrosse stick comprising: a handle; a hooked portion attached to the handle; and an elongated guard; the hooked portion including a relatively straight section having one end rigidly coupled to the handle; a curved section having one end attached to the opposite end of the straight section and terminating in a toe; the guard being of a one-piece plastic construction and having sufficient strength and resilience to withstand impacts normally expected in games of lacrosse, the guard having first and second ends and the stick further comprising: means coupling said first and second guard ends to the respective toe and said one end of the straight section; and a net coupled to the hooked portion and to the guard, the guard being positioned for combining with the hooked portion to guide a lacrosse ball into the net and to aid a player in directing the ball when firing the ball out of the lacrosse stick.

2. A lacrosse stick comprising: a handle, said handle including a tube having a plurality of inwardly extending longitudinal ribs, and an elongated rod frictionally supported in said tube by said ribs; a hooked portion including a shank for connecting said hooked portion to said handle, a relatively straight section having one end attached to said shank, and having a generally U-shaped cross-section, a curved section having one end attached to the opposite end of said straight



896691

section; a one-piece plastic guard having at least one opening at a first end and at least one opening at the opposite end and being of sufficient strength and resilience to withstand impacts normally expected in games of lacrosse; means passing through said openings to attach the guard to the shank and to the toe; and a net coupled to the hooked portion and to the guard, the guard being positioned for combining with the hooked portion to guide a lacrosse ball into the net and to aid a player in directing the ball when firing the ball out of the lacrosse stick.

3. A lacrosse stick as claimed in claim 1 or 2 in which the hooked portion is of plastic.

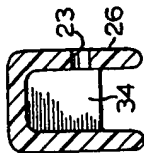
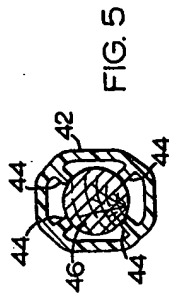
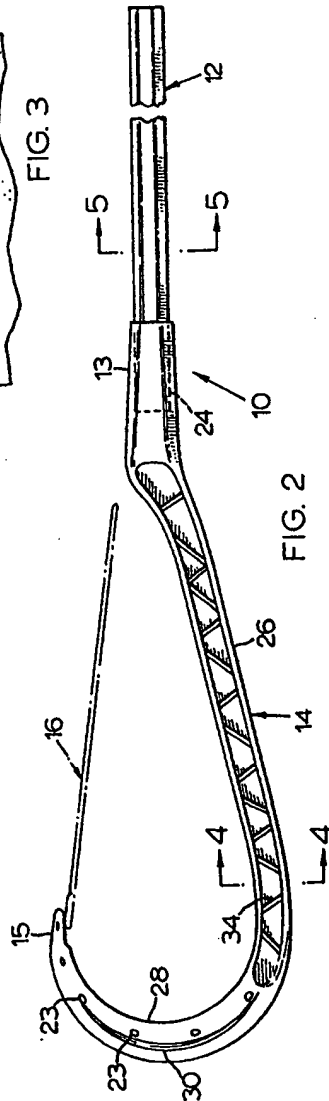
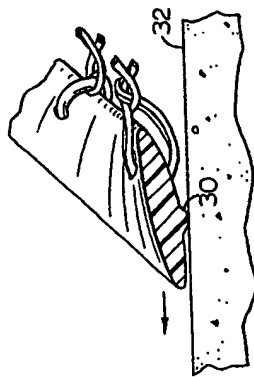
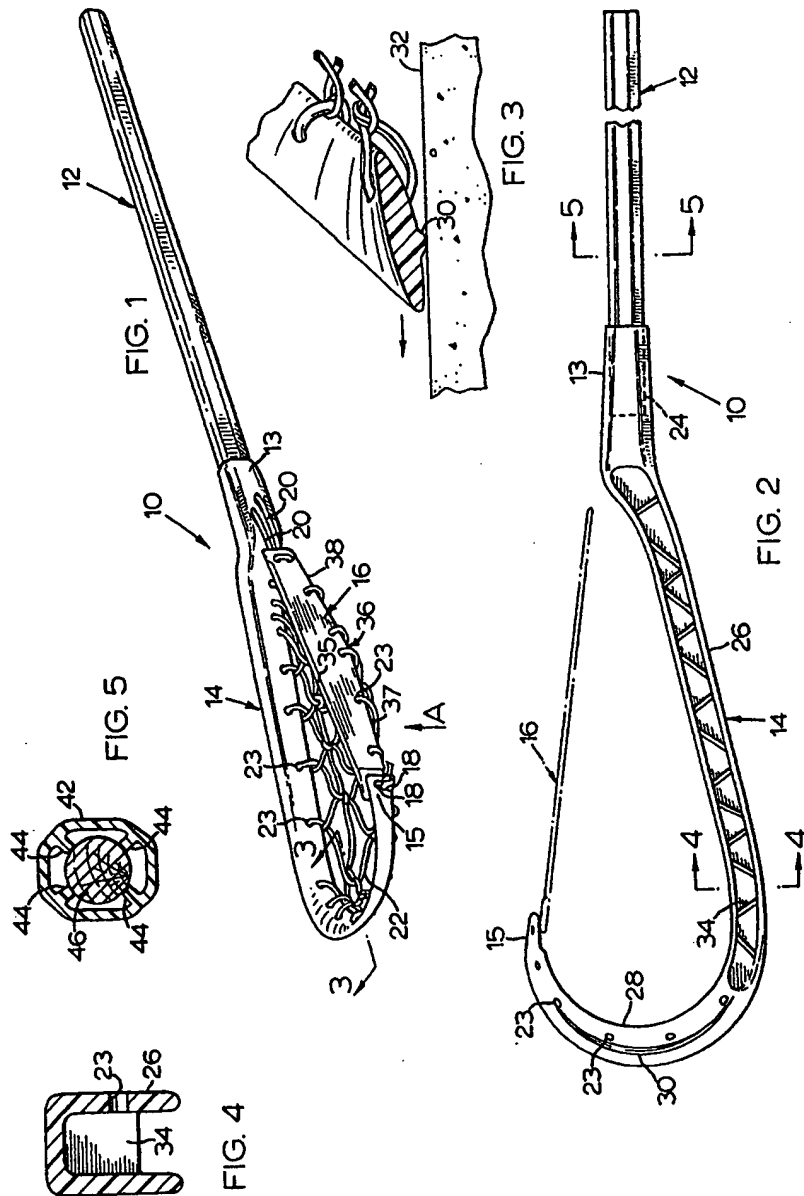
4. A lacrosse stick as claimed in claims 1 or 2 in which the hooked portion is of plastic and defines a socket formed in the shank for receiving the handle.

5. A lacrosse stick comprising: a handle, a hooked portion including a shank for connecting said hooked portion to said handle, a relatively straight section having one end attached to said shank, a curved section having one end attached to the opposite end of said straight section, at least a portion of said straight section having a U-shaped cross-section; a one-piece plastic guard having at least one opening at a first end, and at least one opening at the opposite end and being of sufficient strength and resilience to withstand impacts normally expected in games of lacrosse; means engaged in said openings to couple the

896691

guard to the shank and to the toe with the guard overlapped with the toe to locate the guard relative to the hooked portion; and a net coupled to the hooked portion and to the guard, the guard being positioned for combining with the hooked portion to guide a lacrosse ball into the net and to aid a player in directing the ball when firing the ball out of the lacrosse stick.



**Inventor**

**by:**

JOHN A. HOULT

*Jagers, Berukind Parr*  
Patent Agent

**Patent Agent**